

**SYSTEMS AND METHODS FOR HIERARCHICALLY
DEMODULATING AND DECODING A DATA SIGNAL USING A
PILOT SIGNAL AND AN ADDITIONAL SIGNAL**

ABSTRACT

Systems and methods for demodulating and decoding signals on a multi-path data channel using a pilot signal and at least one additional signal as a demodulation reference. One embodiment comprises a method in which a pilot signal is used to demodulate and decode an additional signal, and then both the pilot signal and the additional signal are used to demodulate and decode a data traffic signal. A receiver receives a data traffic signal, a rate indicator signal and a pilot signal. The pilot signal is used as a demodulation reference for the rate indicator signal. After the rate indicator signal is demodulated and decoded, this signal is re-encoded and compared to the received rate indicator signal and used in combination with the pilot signal as a demodulation reference for the demodulation and decoding of the data traffic signal and to estimate SNR for power control purposes.